

IN THE CLAIMS:

Please cancel claims 4, 7-10, and 13, amend claims 1, 5, and 11, and add new claims 14 and 15 as follows:

1. (Currently Amended) A magnetoresistive film comprising:
  - an antiferromagnetic layer;
  - a first pinned ferromagnetic layer superposed on the antiferromagnetic layer, a base interfacial roughness being formed between the antiferromagnetic layer and the first pinned ferromagnetic layer;
  - an antiferromagnetic bonding layer superposed on the first pinned ferromagnetic layer;
  - a second pinned ferromagnetic layer superposed on the antiferromagnetic bonding layer;
  - a compound existing between the antiferromagnetic layer and the second pinned ferromagnetic layer on the antiferromagnetic bonding layer, said compound including one of oxygen, nitrogen, sulfur and carbon combined with an element included in the antiferromagnetic bonding layer;
  - a non-magnetic spacer layer superposed on the second pinned ferromagnetic layer, an interfacial roughness smaller than the base interfacial roughness being formed between the second pinned ferromagnetic layer and the non-magnetic spacer layer; and
  - a free ferromagnetic layer superposed on the non-magnetic spacer layer.

2. (Original) The magnetoresistive film according to claim 1, wherein said antiferromagnetic layer is a polycrystalline layer of a regulated lattice structure.

3. (Original) The magnetoresistive film according to claim 2, wherein said compound comprises at least one of an oxide, a nitride, a sulfide and a carbide.

4. (Cancelled)

5. (Currently Amended) The magnetoresistive film according to claim-41, wherein said antiferromagnetic bonding layer has a thickness in the range between 0.5nm and 0.9nm.

6. (Original) The magnetoresistive film according to claim 5, wherein said non-magnetic spacer layer has a thickness in the range between 1.9nm and 2.3nm.

7-10. (Cancelled)

11. (Currently Amended) A layered polycrystalline structure film comprising:

a first crystalline ferromagnetic layer having a base interfacial roughness;

an antiferromagnetic bonding layer formed on the first crystalline ferromagnetic layer based on epitaxy;

a second crystalline ferromagnetic layer formed on the antiferromagnetic bonding layer based on epitaxy; and

~~a compound existing between the antiferromagnetic bonding layer and the second crystalline ferromagnetic layer~~ on the antiferromagnetic bonding layer, said compound including one of oxygen, nitrogen, sulfur and carbon combined with an element included in the antiferromagnetic bonding layer, wherein

said second crystalline ferromagnetic layer forms an interfacial roughness smaller than the base interfacial roughness.

12. (Original) The layered polycrystalline structure film according to claim 11, wherein said compound comprises at least one of an oxide, a nitride, a sulfide and a carbide.

13. (Cancelled)

14. (New) The magnetoresistive film according to claim 1, wherein said antiferromagnetic bonding layer is a Ru layer.

15. (New) The layered polycrystalline structure film according to claim 11, wherein said antiferromagnetic bonding layer is a Ru layer.